

TOILET AND TOILET SEAT PROTECTOR

Field of the Invention

The present invention relates to improvements in toilet and toilet seat sanitation, more particularly, directing the spray of urine into the bowl and preventing the urine from entering the area between the seat and the bowl of the toilet.

Background of the Invention

One of the problems faced by parents of young children is the issue of toilet training. Young boys, in particular, are not particularly careful when they urinate thus causing urine to be sprayed not just into the toilet but also onto the underside of the toilet seat and the surrounding area. One area that is commonly sprayed is the region between the toilet seat and the toilet where the toilet seat is connected to the toilet. This area is also particularly difficult to clean once it has been soiled. Urine can flow not only between the seat and the bowl but also between the bolts and the orifices in the bowl for connecting the seat to the toilet. Thus in order to clean this area thoroughly, the only preferred way is to remove the seat from the toilet, washing the affected area and reconnecting the seat. It will be appreciated that this is time consuming and difficult. In addition, on many older installations it is not always a simple task to remove the seat from the toilet. Many older seats have metal threaded members and a metal nut

that can corrode over time due to contact with water causing the two to become difficult to separate and later reinstall once the area has been cleaned.

Over the years there have been various products available to assist the parent in toilet training a young boy and in particular to assist him in having the urine actually enter the bowl. There have been several products that are attached to the toilet ad which hang into the bowl some distance that provide a target for the child to aim for. Alternatively, there have been products that float in the water in the bowl that provide an aiming surface for the boy to direct the urine stream. While these products are efficacious to some extent, they do not solve the problem. One reason why they do not solve the problem is that there are many instances where the child has become absorbed in play and waited to the very last minute to seek relief. In these instances, the urgent need to evacuate overcomes any effort to keep the urine stream within the confines of the bowl or to aim at an artificial target. A similar situation arises on many mornings where the child has been asleep all night. When the child awakens, due to the time that has passed since the night before, the child frequently has to urinate quickly. In these instances also, the child is more likely to be less careful with the urine stream than he would otherwise be, thus causing urine to be sprayed outside the bowl and onto the seat of the toilet and elsewhere.

In order to alleviate the cleaning problem many parents require the younger boys to sit on the toilet seat or a specially designed potty seat even though the boy is tall enough to use the toilet bowl from a standing position. While sitting on the toilet seat solves the immediate problem the parent is actually only putting off the time when the boy has to stand to urinate. In

addition, the potty seats often have a guard at the front tip of the seat that can make it difficult or even painful for the boy to sit on the seat by himself, or even when he is lifted in place or gets down himself. Even if the child is older, whether through carelessness or inaccuracy the problem still seems to be present.

As a result, there is a need for a device that will protect the surfaces of the toilet from errant streams of urine that is easy to assemble, may be left in place and is easily cleaned after use.

Summary of the Invention

The present invention solves the problem of soiled toilet seats and protects the area between the toilet seat and the bowl that is difficult to clean. The article of the present invention is comprised of a sheet that may have a top edge, a bottom edge and a pair of side edges. There is front surface and a rear surface to the sheet. At least the front surface of the sheet is preferably made of a water impermeable or water repelling material that prevents absorption of the urine and facilitates cleaning of the sheet.

The sheet is held in position on the bowl by a member that extends from the rear surface of the sheet and may rest on or hook over the rim surface of the bowl. The sheet is of generally sufficient size so that the bottom edge preferably extends a short distance into the bowl of the toilet to protect the interface between the seat and the toilet bowl but not so far as it

touches the water in the bowl. The top edge of the sheet extends upwardly a distance above the upper edge of the bowl. The higher the sheet the more protection that is provided.

The sheet is preferably made of a material that has sufficient thickness so that it is capable of remaining upright without bending or flopping over when installed on a toilet bowl. The material may be a plastic material or a plastic coated paper, a wax coated paper or any other suitable material. The sheet is preferably foldable about one or more score lines to reduce its size for packaging and storage purposes.

Brief Description of the Drawings

Figure 1 is a front view of a preferred embodiment of the shield of the present invention.

Figure 2 is a side perspective view of the shield of Figure 1 on a toilet bowl.

Figure 3 is a rear view of the shield of Figure 1.

Figure 4 is a front view of the shield of Figure 1 in position on a toilet.

Figure 5 is a perspective view of the disinfectant container for the shield of the present invention.

Figure 6 is a front view of an alternative embodiment of the shield of the present invention when the toilet seat is in an open position.

Figure 7 is the shield of Figure 6 in a partially opened position.

Figure 8 is the embodiment of Figure 7 when the toilet seat is in a closed position

Figure 9 is an angled front view of another embodiment of the present invention.

Figure 10 is a side view of the right side of the embodiment of Figure 9.

Figure 11 is a superior (top, bird's eye) view of the embodiment of Figure 9.

Figure 12 is a front view of the embodiment of Figure 9.

Figure 13 is an angled front view of the left side guard, separate from the present invention (embodiment of Figure 9?).

Figure 14 is an inferior (bottom, lower) view of the side guard spacer of Figure 15.

Figure 15 is an angled inferior view of the side guard spacer of the present invention.

Figure 16 is a superior view of the base of the present invention.

Figure 17 is an inferior view of the base of the present invention.

Figure 18 is a front view of the shield, separate from the present invention.

Detailed Description of the Invention

As seen in Figure 1 there is a sheet 10 of preferably of a flexible material. The sheet may be made of a plastic or a paper coated and/or impregnated with a plastic, an oil based compound, wax or other water resistant and/or water repellant material. The sheet should be of a sufficient thickness so that the sheet will stand upright without folding or flopping over when placed in position on a toilet seat. The sheet material preferably has a thickness greater than 3mil. Suitable plastic material, include but are not limited to polyethylene, polypropylene and other thermoplastic materials, etc.

The sheet has a top edge 11 a bottom edge 12 and a pair of side edges 13 and 14. There is a front surface 15 and a rear surface 16. The front surface 15 preferably has one or more score lines 17, 18 and 19 that extend from the top edge of the shield to the bottom edge. These score lines facilitate folding the sheet material for storage or for packaging purposes. In addition, the score lines permit the sheet material to have a configuration that loosely approximates the arc of the toilet bowl and its rim, when the sheet is in place on the bowl. In a preferred embodiment the top edge 11 is provided with at least one handle 20 for lifting the shield and putting it in place on the bowl. In addition, the handle facilitates removal of the shield for cleaning after use. In a preferred embodiment, the top edge is provided with a pair of additional handles 21 and 22 that aid in opening and closing the sheet about the score lines and placing the shield in position. The handles may be comprised of any suitable material and have any configuration known in the art. In a preferred embodiment the handles are of the same material as the shield itself and are

integral with the shield.

Extending rearwardly from the shield is at least one means for retaining 23 the shield in place about the toilet rim. The retaining means has a generally horizontal member 24 extending from the rear surface of the sheet and a downwardly extending arm 25 that forms a hook to hold the shield in place. Where a single retaining means is used preferably the retaining means is of sufficient strength to support the shield in its upright position. Preferably, there are three retaining means present 23, 26 and 27. One retaining means 26 is located in the vicinity of the center of the rear surface when measured from the side walls. As shown in Figure 3 the retaining means 26 has a base 26a and a contact surface 26b which connects the retaining means to the rear surface of the sheet. The retaining means 26 may be attached to the rear surface of the sheet 16 by any suitable means. The base 26a preferably rests on the upper surface of the rim of the toilet. Alternatively, the rear member 26 may have the same configuration as retaining means 23 and 27. The other two retaining means preferably extend rearwardly from sections 28 and 29 of the rear wall that are formed by the score lines 17 and 19. Preferably, each of the retaining means is pivotal in at least a horizontal plane to facilitate installation of the shield over the rim of the toilet bowl. Similarly, the downwardly extending arm 25 should also be flexible to accommodate different toilet bowl designs. Alternatively, the retaining means may extend from the side edges 13 and 14 and be pivotal about the side edge so that they can be placed over the rim. When the retaining means extend from the side edge, they may be readily made from the same sheet material as the remainder of the shield. A score line 30 is one means of rendering the retaining means pivotal. In one embodiment the rear retaining means 26 need not have a hook shaped appendage. It has been found that the score line 18 in the center region of the sheet

locates the rear wall toward the rim of the bowl without the necessity for a hook shaped retaining means in that location. It may be preferable, however, to provide one or more supports 26 to prevent the shield from tipping rearwardly when in place. The retaining means and supports may be affixed to the shield by any suitable means as will be appreciated by one skilled in the art. For example, the retaining means may be affixed to rear wall by means of a hinge.

As seen in Figures 2 and 4, the sheet is of generally sufficient size so that the bottom edge extends a short distance into the bowl of the toilet but not so far as it touches the water in the bowl. By extending into the bowl a distance the shield protects the area where the toilet seat is connected to the bowl from urine. The top edge of the sheet extends upwardly a distance above the upper edge of the bowl. The higher the sheet the more protection that is provided from errant streams of urine.

The shield of the present invention is preferably provided with a water impermeable surface for ease of cleaning and to prevent urine from being impregnated in the material. Although the shield may be disposable, the shield may also be cleaned by any suitable means. Figure 5 is an example of one means of disinfecting the shield of the present invention. The container 50 has a front wall 51 a rear wall 52 and a pair of side walls 53 and 54. There is a bottom wall 55 and a removable cover 56. In a preferred embodiment the cover is hingedly connected to the rear wall at the upper surface 57 of the rear wall. The front wall 51 preferably has hingedly connected at its base a drip tray 58. The drip tray when not in use is in an upright position against the front wall of the container. When the shield is to be disinfected the tray is

pulled down away from the front wall. The shield is dipped into the disinfectant in the container and removed. The shield may rest on or be placed over the drip tray so that any disinfectant present can drip off the shield. The tray is provided with a pair of side walls 59 and 60 and a base wall 61 that help retain the tray in position against the front wall by means of a friction fit. These walls also prevent any disinfectant from soiling the floor surface when it drips off the shield.

Figures 6, 7, and 8 depict an alternative embodiment of the shield of the present invention. In this embodiment, the shield 70 has an axis 71 separating the shield into an upper section 72 and a lower section 73. In a preferred embodiment the upper section and the lower section are mirror images of each other. The shield has a top edge 74 and a bottom edge 75. The top edge 74 has a pair of horizontal portions 76 and 77 that are separated by a center arc 78 that connects the horizontal portions. The bottom edge 75 has a pair of horizontal portions 79 and 80 that are separated by a center arc 81 that connects the horizontal portions. On the side of the horizontal edge opposite the center arc are side arcs 82 and 83 on the top edge and side arcs 84 and 85 on the bottom edge. Two vertical score lines 86 and 87 are located on the sheet and extend for about the midpoint of the horizontal portions on the top edge to about the midpoint of the respective horizontal portion on the bottom edge. The score lines permit sections 88 and 89 to be folded inwardly. When sections 88 and 89 are folded inwardly the side arcs 82 and 83 preferably line up with the center arc 78 and the side arcs 84 and 85 preferably line up with the center arc 81 as shown in Figure 7. As seen in Figure 6 there are additional score lines 90, 91, 92, and 93 on one side and score lines 94, 95, 96 and 97 on the other. These score lines form generally a diamond shape.

Figure 7 shows the shield in a partially opened position. As can be seen in this

Figure, the side arcs line up with the center arcs. The base 100 and 101 of triangles 98 and 99 formed by the score lines 90 and 92 are bisected by score line portions 102 and 103 respectively that extend from the apex 104 and 105 of the triangles to the respective bases. Score line portions 102 and 103 and score lines 90 and 92 and 95 and 97 permit the upper section 72 to be folded over the lower section 73. Orifices 104, 105, 106, 107, 108, 109, 110 and 111 provide a means to tie the shield to the bowl and the toilet seat.

When the toilet seat is in its lowered position, the shield is as is shown in Figure 8. When the shield is being lifted for use, the upper section 72 separates from lower section 73 about the axis 71 as seen in Figure 8. As the seat is placed in a raised position, sections 88 and 89 open outwardly forming the shielding surface as shown in Figure 6. The shield of Figures 6, 7, and 8 is preferable provided with a water impermeable surface to facilitate cleaning of the shield. In order to clean the shield the shield is removed from the bowl and seat. If desired the shield can be disinfected by using the container of the present invention or by any other suitable means.

The shield of the present invention may be manufactured by any suitable means. One method of manufacturing the shield of the present invention is by die cutting whereby a blade in the shape of the design of the shield cuts through the sheet material to form the shield.

The second embodiment of the invention is represented removed from the toilet in its expanded form in figure 9. The second embodiment of the invention consists of a shield 203

connected to a pair of side guards 201 and 202 and a base 210. The shield 203 has a top edge 204, a bottom edge 205, and a pair of side edges 206 and 207. The bottom edge 205 and both side edges 206 and 207 have attachment flaps 211, and 208 and 209, respectively. The bottom attachment flap 211 is attached to the base 210 by any adhesive means, such as glue. The side attachment flaps 208 and 209 are attached to the outer surfaces 212 and 213 of the side guards 202 and 201, respectively. The side guards 201 and 202 have outer surfaces 213 and 212 and inner surfaces 215 and 214, respectively. Each side guard 201 and 202 has an arc edge 217 and 216, respectively. The arc edges 217 and 216 are cut in the same arc as the inner arc 218 of the base 210. Each arc has an angled edge 219 and 220. These angled edges 219 and 220 come in contact with the shield 203. The side attachments flaps 208 and 209 wrap around the angled edges 220 and 219, respectively, to attach the shield 203 to the side guard outer surfaces 212 and 213, respectively. Each side guard 201 and 202 has an attachment piece 221 and 222, respectively. The attachment piece 221 and 222 has an arced edge 223, 224 which is cut in the same manner as the outer arc 225 of the base 210. The side guard 201 and 202 has a score line 227 and 226, respectively. Score lines 226 and 227 allow the side guards 202 and 201 to fold down onto the base 210. The side guards 201 and 202 also have attachment means 229 and 228. Attachment means 229 and 228 are composed of two slots 231 and 230, and 233 and 232. The attachment means 228 and 229 allow for the attachment of elastic means 234 and 235, which allow the device 200 to automatically expand when the toilet seat is raised off of it. Side guard spacers 236 and 237 can be attached to the outer surfaces 212 and 213 of the side guards 202 and 201, respectively.

Figure 10 is an outer side view of the invention. In this perspective the side guard 202 is shown, one can also see the outer surface of the side guard 212, the shield 203, the top edge 204, the side attachment flap 208, the base 210, an attachment piece 222, a flat edge 238, the attachment mean 228 and elastic means 234; also depicted is the side guard spacer 236. Figure 10 shows the outer arcs 225 and 225(a) of the base 210 extend beyond the shield 203.

When looking down on the second embodiment, as in Figure 11, the slot means 246 and 247 can be seen in the base 210. Slot means 246 and 247 are cut into the base 210, toward the front of the toilet. Each slot means 246 and 247 is composed of three straight edges 248 and 249, 250 and 251, and 252 and 253. The slot means 246 and 247 are used to engage the hinges of the toilet seat (and seat cover, if present); thus, allowing the invention 200 to fit precisely against the back surface of the toilet bowl. Between slot means 246 and 247 is a straight edge 225 of the base 210.

Figure 12 shows how the shield 203 is attached to the toilet. There are two side guard spacers, one on the outer left hand side 237 and one on the outer right hand side 236. The two side guard spacers 236, 237, function to keep the toilet seat raised off of the invention when the toilet seat is lowered. There are also two elastic means one on the outer left hand side 235 that attaches to the attachment mean 241 and one on the outer right hand side 234 that attaches to attachment means 240. The top edge 204 of the shield 203 and the shield 203 rests against the toilet seat when the seat is lifted.

Figure 13 illustrates the side guard 201 which is located and attached to the outer edge of the shield 203. The drawing shows the outer edge 213 and the inner edge 215 of the side guard 201. The side guard 201 has an angled edge 219 that is connected to the shield 203. The side

guard 201 also has an angled edge 217 that has an attachment means 229 towards the front of the toilet seat. The attachment means 229 has two slots, 231 and 233, cut into the side guard 201 on the angled edge 217. The figure also shows the attachment piece 221, with its arced edge 223 and the score line 227 at which the attachment means 221 is folded upwards at a 90-degree angle from the side guard 201.

Figure 14 depicts the side guard spacer 236. The side guard spacer has a topside 254 and bottom side 253. The side guard spacer 236 has four sides, topside 257, a bottom side 255, a right side 258 and a left side 256. Each side is connected at right angles, left side 256 is connected to top side 257 at a right angle a, top side 257 is connected to right side 258 at a right angle d, right side 258 is connected to bottom side 255 at right angle c, and bottom side 255 is connected to left side 256 at right angle b. The side guard spacer 236, although shown as a square, may be any shape or size, or may not be present. There are two attachment members, one on the length of the left side 260 and on the length of the right side 259. The side guard spacer, 236 is attached to the side guard, 201 at points 261 and 262a by adhesive means.

Figure 15 shows side guard spacers 236 and 237. These side guard spacers 236 and 237 have a top surface 254, and four side surfaces 255, 256, 257 and 258. The bottom of each side guard spacer is open, except for two attachment members 259 and 260. Adhesive is applied to the outer surfaces 261 and 262 of these attachment members 259 and 260, respectively. The side spacer guard 236 and 237 is then attached to the outer surface 212 and 213 of side guards 202 and 201, respectively.

Figure 16 shows the base 210 of the invention 200 is composed of an inner arc 218 and

two outer arcs 225 and 225b. Flat edges 238 and 239 connect the inner arc 218 to the outer arc 225. Located on the inner arc 218 are attachment means 240 and 241. Attachment means 240 and 241 are each composed of two slots 242 and 243, and 244 and 245. Attachment means 240 and 241 provide articulation points for elastic means 234 and 235, respectively. Slot mean 246 and 247 are cut into the outer arc 225 of the base 210. The top surface 263 of the base 210 has two attachment areas 264 and 265. These attachment areas are cut in the same manner as the attachment pieces 221 and 222 of side guards 201 and 202, respectively. The attachment areas 264 and 265 outline areas on the top surface 263 of base 210 where adhesive should be applied to fix the side guards 201 and 202 to the base 210. Attachment areas 264 and 265 are each composed of straight edges 266 and 267, and 268 and 269. Curved edges 270 and 271 complete the area to be filled with adhesive.

Figure 17 represents the second embodiment from the perspective of the bottom surface 272 of the base 210. The outer arcs 225 and 225b are seen. As well as slot means 246 and 247, and straight edge 225a. The bottom surface 272 has toilet attachment means 273 a-f. These toilet attachment means 273 a- f are fastened to the bottom surface 272 of the base 219 on the bottom surface. The top surface of toilet attachment means 273 articulates with the upper surface of the toilet bowl rim. The toilet attachment means 273 will not permanently fix the device to the toilet. They are such that will allow the user to disengage the device, allowing for replacement of the device at regular intervals. The toilet attachment means 273 a-f may be Velcro® or double-sided tape. Also, the toilet attachment means 273 a-f, may be any shape, in any number, and may cover any part or the entire bottom surface.

Figure 18 represents the shield 203 of the second embodiment. In this embodiment, the

shield 203, the bottom edge 205 is divided into two bottom attachment flaps 274 and 275. The bottom attachment flaps 274 and 275 are separated by an arc-shaped cut-out 276. The arc-shaped cut-out 276 is cut in the same manner as the inner arc 218 of the base 210. The bottom attachment flaps 274 and 275 can be attached to the top surface 263 or bottom surface 273 of the base 210.

The bottom attachment flaps 274 and 275 are folded along bottom score line 277, which traverses the shield 203. The side attachment flaps 208 and 209, which attach to side areas 202 and 201, are folded along side score lines 277 and 278, respectively. Diagonal score lines 281 and 282 allow the shield to fold on itself when the device is collapsed under the toilet seat.

On the reverse side 282 of the shield 203 supports 283 and 284 can be attached. These supports 283 and 284 will give the shield 203 the ability to resist urine flow.